




6640/59442

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

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Applicant : Kensaku Abe et al.  
Serial No.: 09/529,269  
Filed : April 10, 2000 Appeal No.  
For : ACOUSTIC APPARATUS AND HEADPHONE  
Group : 2643  
Examiner : Lun S. Lao  
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JAY H. MAIOLI Date  
Reg. No. 27,213 September 15, 2005

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TRANSMITTAL LETTER FOR APPELLANT'S BRIEF

Mail Stop Appeal Brief  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Transmitted in triplicate is Appellant's Appeal Brief  
in the above-identified application.

The fee of \$500.00 set by 37 C.F.R. § 1.17(F) for

filing the Brief is submitted herewith.

Please charge any additional fees incurred by reason of the Brief or credit any overpayment to Deposit Account No. 03-3125. A duplicate of this Transmittal Letter is enclosed.

Respectfully submitted,

COOPER & DUNHAM LLP

A handwritten signature in cursive script, appearing to read "Jay H. Maioli".

Jay H. Maioli  
Reg. No. 27,213

JHM/JBG:cr  
enc.



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JAY H. MAIOLI  
Reg. No. 27,213

*Jay H. Maioli*  
Date  
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**APPELLANT'S BRIEF**

Mail Stop Appeal Brief-Patents  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

This is an Appeal to the Board of Patent Appeals and  
Interferences from the Decision dated December 15, 2004, of  
the Examiner finally rejecting claims 1 & 3-11 pending in this  
application.

1. REAL PARTY IN INTEREST

This application is assigned to Sony Corporation, 7-35 Kitashinagawa 6-chome, Shinagawa-ku, Tokyo 141, Japan by the Assignment recorded October 5, 2000 at Reel 011165, Frame 0453.

2. RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences presently known to the undersigned.

3. STATUS OF ALL CLAIMS

This application was originally filed with 15 claims. Claims 1-15 were amended by the Preliminary Amendment mailed May 26, 2000. Claims 1, 3-5, 7-11, and 13 were amended and claims 2 and 12 were canceled by the Amendment mailed June 26, 2003. Claims 1, 5, 9-11, and 13 were amended by the Amendment mailed December 15, 2003. Claims 1 and 5-11 were amended and claims 13-15 were canceled by the Amendment mailed August 23, 2004. A Final Office Action was mailed on December 15, 2004 finally rejecting claims 1 and 3-11. Claims 1 and 3-11 stand finally rejected and are the basis of this Appeal.

4. STATUS OF AMENDMENTS FILED SUBSEQUENT TO FINAL REJECTION

A Final Office Action was mailed on December 15, 2004 finally rejecting claims 1 and 3-11. Claims 1 and 3-11 stand finally rejected and are set forth in Exhibit A attached hereto.

## 5. SUMMARY OF INVENTION

The presently claimed invention relates to an acoustic apparatus and headphone including:

a headphone section (10 in Fig. 1) mounted on a user's head having first and second headphone boxes (13L & 13R in Fig. 1) arranged respectively on the ears of the user and having first and second microphone elements (14L & 14R in Fig. 1) mounted respectively on the first and second headphone boxes for detecting sound around the user and signal acoustic transducing elements (15L & 15R in Fig. 1) mounted respectively in the first and second headphone boxes functioning as sound sources with first output terminals (11 in Fig. 1) for outputting microphone audio signals collected by the first and second microphone elements and first input terminals (12 in Fig. 1) for inputting audio signals supplied to the first and second signal acoustic transducing elements; and

a control circuit section (20 in Fig. 1) separate and independent from the headphone section and having second input terminals (21 in Fig. 1) connected to the first output terminals and second output terminals (22 in Fig. 1) connected to the first input terminals for controlling at least frequency characteristics and gain characteristics of the microphone audio signals (page 10, lines 19-22) from the first and second microphone elements of the headphone section input through the second input terminals, for generating a cancel audio signal for canceling effects of the sound around the user in the signals fed

to the first and second signal acoustic transducing elements (page 12, lines 17-21), and for supplying the cancel audio signal to the first and second signal acoustic transducing elements of the headphone section through the second output terminals, whereby ambient sound around the user is cancelled in a range of 50 Hz to 1.5 kHz (page 11, lines 4-5), said control circuit section further including recording means (27 in Fig. 1) for recording the microphone audio signals output from the first and second microphone elements as binaural audio signals (page 13, lines 3-22).

#### 6. ISSUES

Whether claims 1 and 3-11 are patentable under 35 U.S.C. § 103(a) over Andrea et al. (US 5,251, 263) in view of Usami et al. (US 4,088,849), Ueno (US 5,341,254), and Trompler (US 4,928,311).

#### 7. GROUPING OF CLAIMS

Claims 1 and 3-11 stand or fall together.

#### 8. ARGUMENT

CLAIMS 1 AND 3-11 ARE PATENTABLE UNDER 35 U.S.C. § 103(a) OVER ANDRE ET AL. IN VIEW OF USAMI ET AL., UENO, AND TROMPLER

As described above in the "SUMMARY OF THE INVENTION" section of this Brief, the claimed invention provides a combination of a

headphone system as well as a noise cancellation system and further includes the capability of making binaural recordings.

This combination of operative results is provided in part by arranging the microphones used for the noise cancellation function on the outside of the earphone shells so that the microphones can also function in the binaural recording mode.

It is respectfully submitted that the cited art, taken alone or in combination, fails to show or suggest the above-noted features of the present invention for the following reasons.

Andrea et al. relates to an adaptive noise cancellation system used in connection with a headphone. Typically the headset includes a reference microphone, a feedback microphone, and a speaker arranged in a housing. The portion of interest of Andrea et al. is shown in Figs. 4, 8, 9, and 10. In those constructions, a first sensor to sense the ambient noises is provided along with a second sensor to sense the signal in the ear canal of the user and a speaker to produce the local anti-noise and received signals. All of these elements are resident in a headset. As shown in Fig. 11, for example, the external sensor 60 senses the ambient acoustic noise and the in ear sensor 70 also acts as a microphone in the transmit mode, as well as detecting noise in the ear canal of the user.

In making the present rejection the examiner has modified the structure shown in Andrea et al. and discussed above to somehow include a recording means allegedly shown in Usami et al.

Usami et al. has a headphone unit that incorporates microphones for picking up binaural signals for recording. The

Usami et al. system provides some foam reflectors or surfaces that simulate the pinna of a human, thus enhancing the imaging of the binaural recording to be made.

It will be initially noted that Usami et al. does not disclose any recording means but simply provides the microphones mounted on the headphone unit to pick up the signals used in making a binaural recording.

It is respectfully submitted that there is no suggestion in Andrea et al. to somehow employ the binaural recording microphones of Usami et al. in an effort to result in a system such as presently recited in the claims of this application.

In the first place, one has to discard the two microphones or sensors of Andrea et al., thereby destroying the basic teaching of the Andrea et al. invention. Furthermore, Andrea et al. already shows reference elements 60' in Fig. 10 on the outside of the headphones.

Therefore, there is no suggestion in Andrea et al. to make the combination with Usami et al., as suggested by the examiner.

The Federal Circuit states that "[t]he mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification." In re Fritch, 972 F.2d 1260, 1266 n.14, 23 USPQ2d 1780, 1783-84 n.14 (Fed. Cir. 1972), citing In re Gordon, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984). It is further established that "[s]uch a suggestion may come from the nature of the problem to be solved,

leading inventors to look to references relating to possible solutions to that problem." Pro-Mold & Tool Co. v. Great Lakes Plastics, Inc., 75 F.3d 1568, 1573, 37 USPQ2d 1626, 1630 (Fed. Cir. 1996), citing In re Rinehart, 531 F.2d 1048, 1054, 189 USPQ 143, 149 (CCPA 1976) (considering the problem to be solved in a determination of obviousness). The Federal Circuit reasons in Para-Ordnance Mfg., Inc. v. SGS Importers Int'l, Inc., 73 F. 3d 1085, 1088-89, 37 USPQ2d 1237, 1239-40 (Fed. Cir. 1995), that for the determination of obviousness, the court must answer whether one of ordinary skill in the art who sets out to solve the problem and who had before him in his workshop the prior art, would have been reasonably expected to use the solution that is claimed by the Appellant.

In addition, the Federal Circuit requires the Office to make findings on a suggestion to combine prior art references. In re Dembiczak, 175 F.3d 994, 1000-01, 50 USPQ2d 1614, 1617-18 (Fed. Cir. 1999). The Federal Circuit states further that the "factual question of motivation is material to patentability, and could not be resolved on subjective belief and unknown authority." In re Lee, 277 F.3d 1338, 1345, 61 USPQ2d 1430, 1433-34 (Fed. Cir. 2002). It is improper, in determining whether a person of ordinary skill would have been led to this combination of references, simply to "[use] that which the inventor taught against its teacher." W.L. Gore v. Garlock, Inc., 721 F.2d 1540, 1553, 220 USPQ 303, 312-13 (Fed. Cir. 1983).

As noted hereinabove, there is no suggestion in either reference of any benefits to be had by discarding the sensors of Andrea et al. and substituting the binaural microphones of Usami et al. To do so would destroy the functionality of the Andrea et al. system.

Ueno relates to an apparatus for switching between recording and playback modes of a tape recorder. External earphones and an external microphone are connected to the apparatus to perform recording and reproduction. The apparatus may be switched between modes by a control signal input from a remote control unit. The control signal, input signal and output signal may all travel through a common jack. However, Ueno fails to teach or suggest a combination of a headphone system as well as a noise cancellation system further including the capability of making binaural recordings.

Trompler relates to a protective earmuff which transmits normal sound levels and clips higher amplitude sound levels by causing an amplifier located within the headphone box to go into saturation when the input signal is greater than a preset amount. The user can control the clipping level and the output volume independently. However, Trompler fails to teach or suggest a combination of a headphone system as well as a noise cancellation system further including the capability of making binaural recordings.

Accordingly, it is respectfully submitted that claims 1 and 3-11 are patentable under 35 U.S.C. § 103(a) over Andrea et al. (US 5,251, 263) in view of Usami et al. (US 4,088,849), Ueno (US

5,341,254), and Trompler (US 4,928,311).

A reversal of the Final Rejection of claims 1 and 3-11 by this Honorable Board is respectfully requested.

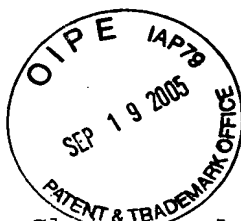
Respectfully submitted,  
COOPER & DUNHAM LLP

A handwritten signature in cursive script, appearing to read "Jay H. Maioli".

Jay H. Maioli  
Reg. No. 27,213

JHM/JBG

**Exhibit A**



6640/59442

Claim 1. An acoustic apparatus comprising:

a headphone section mounted on a user's head having first and second headphone boxes arranged respectively on the ears of the user and having first and second microphone elements mounted respectively on the first and second headphone boxes for detecting sound around the user and signal acoustic transducing elements mounted respectively in the first and second headphone boxes functioning as sound sources with first output terminals for outputting microphone audio signals collected by the first and second microphone elements and first input terminals for inputting audio signals supplied to the first and second signal acoustic transducing elements; and

a control circuit section separate and independent from the headphone section and having second input terminals connected to the first output terminals and second output terminals connected to the first input terminals for controlling at least frequency characteristics and gain characteristics of the microphone audio signals from the first and second microphone elements of the headphone section input through the second input terminals, for generating a cancel audio signal for canceling effects of the sound around the user in the signals fed to the first and second signal acoustic transducing elements, and for supplying the cancel audio signal to the first and second signal acoustic transducing elements of the headphone section through the second output terminals, whereby ambient sound around the user is cancelled in a range of 50 Hz to 1.5 kHz, said control circuit section further including recording means for recording the

microphone audio signals output from the first and second microphone elements as binaural audio signals.

Claim 2. (Cancelled)

Claim 3. The acoustic apparatus according to claim 1, wherein the control circuit section further comprises:

means for adding different audio signals to the cancel audio signal using a signal audio converter element.

Claim 4. The acoustic apparatus according to claim 1, wherein the control circuit section further comprises:

means for adding different audio signals to the cancel audio signal using a signal audio converter element as a sound source; and

a remote control configured to supply remote-control signals for remotely controlling output of the different audio signals.

Claim 5. An acoustic apparatus comprising:

a headphone section mounted on a user's head, having first and second headphone boxes arranged respectively on the ears of the user, first and second microphone elements mounted on the first and second headphone boxes for detecting sound around the user first and second signal acoustic transducing elements arranged in the first and second headphone boxes functioning as sound sources, first output terminals, an adjusting section for adjusting outputs of microphone audio signals collected by the

first and second microphone elements, and first input terminals for inputting a cancel audio signal supplied to the first and second signal acoustic transducing elements, and

a control circuit section arranged in a housing separate and independent from the headphone section and having a second input terminals connected to the first output terminals and second output terminals connected to the first input terminals for controlling at least frequency characteristics and gain characteristics of the microphone audio signals from the first and second microphone elements of the headphone section input through the second input terminals, for generating the cancel audio signal that can serve as a sound source for canceling effects of the sound around the user, and for supplying the cancel audio signal to the first and second signal acoustic transducing elements of the headphone section through the second output terminals, whereby ambient sound around the user is cancelled in a range of 5 Hz to 1.5 kHz, said housing also having arranged therein recording means for recording the microphone audio signals from the first and second microphone elements as binaural signals.

Claim 6. The acoustic apparatus according to claim 5, wherein an amplifier section is included in each first and second headphone box behind the adjusting section for amplifying the microphone audio signals from the first and second microphone elements and for adjusting the microphone audio signals from the first and second microphone elements, where gains are controlled

by amplifying the microphone audio signals.

Claim 7. The acoustic apparatus according to claim 5, wherein an amplifier section for generating signals serving as a sound source for canceling the sound around the user and adjusting means for adjusting an output level of the amplifier section are provided in each first and second headphone box, and gains of the cancel audio first and second signal input to the signal acoustic transducing elements are controlled.

Claim 8. The acoustic apparatus according to claim 5, wherein an adjusting section adjusts the microphone audio signals from the first and second microphone elements that serve as sound sources for canceling the effects of the sound around the user and adjusts the microphone audio signals from the first and second microphone elements in the first and second headphone boxes,

said adjusting means having operating means operable by the user from outside the first and second headphone boxes, and

an amplifier section for amplifying the microphone audio ~~signal~~ signals adjusted at the adjusting section.

Claim 9. An acoustic apparatus comprising:

a recording/playback device;

a headphone section mounted on a user's head, having first and second headphone boxes arranged respectively on the ears of the user and having first and second microphone elements for

detecting sound around the user and first and second signal acoustic transducing elements functioning as sound sources with first output terminals for outputting microphone audio signals collected by the first and second microphone elements and first input terminals for inputting a cancel audio signal supplied to the first and second signal acoustic transducing elements; and

a remote control connected to said recording/playback device for controlling operation of said recording/playback device and feeding the microphone audio signals to the recording/playback device for recording as binaural signals, said remote controller being separate and independent from the headphone section and including a control section having second input terminals connected to the first output terminals and second output terminals connected to the first input terminals for controlling at least frequency characteristics and gain characteristics of the microphone audio signals from the first and second microphone elements of the headphone section input through the second input terminals, with said frequency characteristics and gain characteristics being adjusted to achieve a predetermined level at a predetermined frequency between 50 Hz and 1.5 kHz, for generating the cancel audio signal that can cancel the ambient sound around the user within a range of 50 Hz to 1.5 kHz, and for supplying the cancel audio signal to the first and second signal acoustic transducing elements of the headphone section through the second output terminals.

Claim 10. An acoustic apparatus comprising:

a headphone section mounted on a user head, having a microphone elements mounted on the first and second headphone boxes for detecting sound around the user and first and second signal acoustic transducing element functioning as sound sources with first output terminals for outputting microphone audio signals collected by the first and second microphone elements and first input terminals for inputting a cancel audio signal supplied to the first and second signal acoustic transducing elements;

a control circuit section arranged in a housing separate and independent from the headphone section and having second input terminals connected to the first output terminals and a second output terminals connected to the first input terminal for controlling at least frequency characteristics and gain characteristics of the microphone audio signals from the first and second microphone elements of the headphone section input through the second input terminals, for generating the cancel audio signal for canceling the effects of the ambient sound around the user within a range of 50 Hz to 1.5 kHz, and for supplying the cancel audio signal to the first and second signal acoustic transducing elements of the headphone section through the second output terminals, and a recording/playback device arranged in the housing for recording the microphone audio signals from the first and second microphone elements as binaural audio signals; and

a circuit configuration for canceling the surrounding sound used by the control circuit section that is of a feed-forward

system.

Claim 11. An acoustic apparatus comprising:

a recording/playback device;

a headphone section mounted on a user's head, having first and second headphone boxes arranged on respective ears of the user and having first and second microphone elements arranged respectively on the first and second headphone boxes for detecting sound around the user and first and second signal acoustic transducing elements functioning as sound sources housed in first and second headphone boxes, respectively, with first output terminals for outputting microphone audio signals collected by the first and second microphone elements and first input terminals for inputting a cancel audio signal supplied to the first and second signal acoustic transducing elements for canceling effects of ambient sound around the user within a range of 50Hz to 1.5kHz;

a remote controller connected to said recording/playback device for controlling operation of said recording/playback device and feeding the microphone audio signals to the recording/playback device for recording as binaural audio signals, said remote controller being separate and independent from the headphone section and including a control circuit section having second input terminals connected to the first output terminals and second output terminals connected to the first input terminals for controlling at least frequency characteristics and gain characteristics of the microphone audio

signals from the first and second microphone elements of the headphone section input through the second input terminals, for generating the cancel audio signal for canceling effects of the sound around the user, and for supplying the cancel audio signal to the first and second signal acoustic transducing elements of the headphone section through the second output terminals; and

a circuit configuration for canceling the effects of the sound surrounding the user used by the control circuit section that is of a feedback system.

Claim 12 - 15. (Cancelled)